I hereby certify that this consespondence is being deposited with the states Postal Service as first class mail in an envelope addressed to:

Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450

Alexandria, VA 22313 on:

INFORMATION DISCLOSURE STATEMENT Patent Application Docket No. UF-311XC1 Serial No. 10/718,842

May 10, 2004 my 2

Margaret Efron, Patent Attorney

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Art Unit

2661

Applicant(s) :

Sartaj Kumar Sahni, Haibin Lu, Kun Suk Kim

Serial No.

10/718,842

Filed

November 21, 2003

For -

Partitioning Methods for Dynamic Router Tables

Conf. No.

1937

Mail Stop Amendment Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

<u>INFORMATION DISCLOSURE STATEMENT</u> <u>UNDER 37 CFR §§1.97 AND 1.98</u>

Sir:

In accordance with 37 CFR §1.56, the references listed on the attached form PTO/SB/08 are being brought to the attention of the Examiner for consideration in connection with the examination of the above-identified patent application. A copy of each cited reference is enclosed.

It is respectfully requested that the references cited on the attached form PTO/SB/08 be considered in the examination of the subject application and that their consideration be made of record.

: : : }

The applicants respectfully assert that the substantive provisions of 37 CFR $\S\S1.97$ and 1.98 are met by the foregoing statement.

Respectfully submitted,

Margaret H. Efron

Patent Attorney

Registration No. 47,545

Phone No.:

352-375-8100

Address:

2421 N.W. 41st Street, Suite A-1

Gainesville, FL 32606-6669

MHE/ue

Enclosure: Form PTO-1449

Copies of references cited



PTO/SB/08A (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

+

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for for	m 1449A/PTO			Con	Complete if Known		
INCORMA	TION DISCL	001	IDE	Application Number	10/718,842		
	ATION DISCL ENT BY APP			Filing Date	November 21, 2003		
STATEINI	ENI DI APP	LICA	AINI	First Named Inventor	Sartaj Kumar Sahni		
(u	se as many sheets	as nec	cessary)	Art Unit	2661		
				Examiner Name			
Sheet	1	of	4	Attorney Docket Number	UF-311XC1		

			U.S. PATENT DO	OCUMENTS	
Examiner Initials*	Cite No. 1	Document Number Number - Kind Code² (if MM-DD-YYYY		Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	U1	US- 4,251,861	02-17-1981	Mago	All
	U2	US- 4,833,468	05-23-1989	Larson et al.	All
	U3	US- 5,555,405	09-10-1996	Griesmer er al.	All
	U4	US- 5,701,467	12-23-1997	Freeston	All
	U5	US- 5,761,440	06-02-1998	De Marco et al.	All
	U6	US- 5,787,430	07-28-1998	Doeringer et al.	All
	U7	US- 5,909,440	06-01-1999	Ferguson et al.	All
	U8	US- 6,018,524	01-25-2000	Turner et al.	All
	U9	US- 6,021,131	02-01-2000	Even	All
	U10	US- 6,041,053	03-21-2000	Douceur et al.	All

	FOREIGN PATENT DOCUMENTS									
		Foreign Patent Document	Dublication Date	Name of Detector or	Pages, Columns, Lines,					
Examiner Initials*	Cite No. ¹	Country Code ³ - Number ⁴ - Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Where Relevant Passages or Relevant Figures Appear	۳ ⁶				
	F1									
	F2									
	F3									
	F4									
	F5									
	F6		*							
	F7	·								

Examiner	Date	
Signature	Considered	

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. Applicant's unique citation designation number (optional). See Kind Codes of USPTO Patent Documents at www.uspto.gov or MPEP901.04. Enter Office that issued the document, by the two-letter code (WIPO Standard T.3). For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. Applicant is to place a check mark here if English language Translation is attached.



PTO/SB/08A (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

+

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for for	m 1449A/PTO			Complete if Known		
	TION DISCL	~	UDE .	Application Number	10/718,842	
	ATION DISCLE ENT BY APPL			Filing Date	November 21, 2003	
STATEIVIE	INIDIAPPL	_10/	AIN I	First Named Inventor	Sartaj Kumar Sahni	
(u:	se as many sheets a	s nec	cessary)	Art Unit	2661	
				Examiner Name		
Sheet	_ 2	of	4	Attorney Docket Number	UF-311XC1	

			U.S. PATENT DO	OCUMENTS	
Examiner Initials*	Cite No. 1	Document Number Number - Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	U11 '	US- 6,061,712	05-09-2000	Tzeng	All
	U12	US- 6,092,072	07-18-2000	Guha <i>et al</i> .	.: All.
	U13	US- 6,104,701	08-15-2000	Avargues et al.	, All
	U14	US- 6,157,955	12-05-2000	Narad et al.	All *
	U15	US- 6,212,184	04-03-2001	Venkatachary et al.	e. All
•	U16	US- 6,266,706	07-24-2001	Brodnik <i>et al</i> .	All
	U17	US- 6,289,013	09-11-2001	Lakshman et al.	ÀII
·	U18	US- 6,335,932	01-01-2002	Kadambi <i>et al</i> .	All
	U19	US- 6,341,130	01-22-2002	Lakshman et al.	All
	U20	US- 6,522,632	02-18-2003	Waters et al.	All
	U21	US- 6,563,823	05-13-2003	Pyrzygienda et al.	All
	U22	US-2002/0009076	01-24-2002	Engbersen et al.	All
-					
		<u></u>			

[Examiner	Date
Signature	Considered

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. Applicant's unique citation designation number (optional). See Kind Codes of USPTO Patent Documents at www.uspto.gov or MPEP901.04. Enter Office that issued the document, by the two-letter code (WIPO Standard T.3). For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Approved for use through 07/31/2006, OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB

Cubatitus	e for form 1449B/P	T0	•	Cor	Complete if Known		
	RMATION		OSLIDE	Application Number	10/718,842		
				Filing Date	November 21, 2003		
SIAI	LEMENT B	YAPI	LICANI	First Named Inventor	Sartaj Kumar Sahni		
(u)	se as many shee	te se nar	eccan/l	Group Art Unit	2661		
(use as many sheets as necessary)				Examiner Name			
Sheet	3	of	4 .	Attorney Docket Number	UF-311XC1		

	NON PATENT LITERATURE DOCUMENTS						
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article, (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T²				
·	R1	Afek, Y. et al. (Dec. 14, 1999) "Routing with a Clue" ACM SIGCOMM. pp. 203-214, (enclosed copy pages numbered 0-23).					
•	R2	BERG, M. (1995) "Two- and Three-dimensional Point Location in Rectangular Sub-divisions" <i>Journal of Algorithms</i> . Vol. 18, No. 2, pp. 256-277.					
	R3	CHANDRANMENON, G. and VARGHESE, G. (1996) "Trading Packet Headers for Packet Processing" <i>IEEE Transactions on Networking</i> . Vol. 4, No. 2, pp. 141-152 (enclosed copy pages numbered 1-13).					
	R4	CHEUNG and MCCANNE. (1999) "Optimal Routing Table Design for IP Address Lookups under Memory Constraints," <i>IEEE INFOCOM</i> . pp. 1437-1444.					
	R5	DEGERMARK, M. et al. "Small Forwarding Tables for Fast Routing Lookups" ACM SIGCOMM Proceedings of the ACM SIGCOMM '97 Conference on Applications, technologies, architectures, and protocols for computer communication. pp. 3-14.					
	R6	DOERINGER, W. et al. (1996) "Routing on Longest-matching Prefixes" IEEE/ACM Transactions on Networking. Vol. 4, No. 1, pp. 86-97.					
	R7	ERGUN, F. et al. (2001) "A Dynamic Lookup Scheme for Bursty Access Patterns" IEEE INFOCOM. pp. 1-10.					
	R8	GUPTA, P. and N. MCKEOWN. (2000) "Dynamic Algorithms with Worst-case Performance for Packet Classification." <i>IFIP Networking</i> . pp. 528-539					
	R9	HARI, A. et al. (2000) "Detecting and Resolving Packet Filter Conflicts" IEEE INFOCOM. pp. 1203-1212.					
	R10	LAMPSON, B. et al. (1998) "IP Lookup using Multi-way and Multicolumn Search" IEEE INFOCOM Transactions on Networking. Vol. 7, No. 3, pp.324-334.					
	R11	MACIAN, C. and R. FINTHAMMER. (2001) "An Evaluation to the Key Design Criteria to Achieve High Update Rates in Packet Classifiers" <i>IEEE Network</i> . Nov/Dec, pp. 24-29 (enclosed copy pages numbered 1-10).					
	R12	MCAULEY, A. and P. FRANCIS.(1993) "Fast Routing Table Lookups Using CAMs" IEEE INFOCOM. Vol. 3 Mar./Apr., pp. 1382-1391.					
	R13	MCCREIGHT, E. (1985). "Priority Search Trees" SIAM Jr. on Computing. Vol. 14, No. 1, pp. 257-276.					

Examiner	Date
Signature	Considered

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

PTO/SB/08B (08-03)



^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Applicant's unique citation designation number (optional). Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete a confidentiality and the completed application forms. gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Approved for use through 07/31/2006. OMB 0651-0031 U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB

Attorney Docket Number

Substitute for form 1449B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Complete if Known **Application Number** 10/718,842 Filing Date November 21, 2003 **First Named Inventor** Sartaj Kumar Sahni **Group Art Unit** 2661 **Examiner Name**

UF-311XC1

(use as many sheets as necessary)

of

4

Sheet

NON PATENT LITERATURE DOCUMENTS Include name of the author (in CAPITAL LETTERS), title of the article, (when appropriate), title of the Examiner Cite item (book, magazine, journal, senal, symposium, catalog, etc.), date, page(s), volume-issue Initials' No. number(s), publisher, city and/or country where published. NEWMAN, P. et al. (Jan. 1997) "IP Switching and Gigabit Routers" IEEE Broadband Communications Magizine. Vol. 35, pp. 64-69 (enclosed copy pages numbered 1-8). **R14** S. NILSSON and G. KARLSSON (1998) "Fast Address Look-up for Internet Routers" Proceedings of IEEE Broadband Communications. (enclosed copy pages numbered 9-18). **R15** RUIZ-SANCHEZ, M. et al. (2001) "Survey and Taxonomy of IP Address Lookup Algorithms" IEEE Network, Mar./Apr., Vol. 15, No. 2, pp. 8-23. **R16** S. SAHNI and K. KIM. "Data Structures of IP Lookup with Bursty Access Patterns", www.cise.ufl.edu/~sahni. (enclosed copy pages numbered 1-5). **R17** S. SAHNI and K. KIM. (2001) "Efficient Construction of Fixed-Stride Multibit Tries for IP Lookup" Proceedings 8th IEEE Workshop on Future Trends of Distributed Computing Systems. pp. 178-184 (enclosed copy pages numbered 1-7). R18 S. SAHNI and K. KIM. (2002) "Efficient Construction of Variable-Stride Multibit Tries for IP Lookup." Proceedings IEEE Symposium on Applications and the Internet (SAINT). pp. 220-229 (enclosed copy pages numbered 1-8). R19 S. SAHNI and K. KIM. (2002) "O(log n) Dynamic Packet Routing." 7th IEEE Symposium on computers and communications. R20 S. SAHNI and K. KIM, H. Lu. (May 2002) "Data structures for one-dimensional packet classification using mostspecific-rule matching." International Symposium on Parallel Architectures, Algorithms, and Networks (ISPAN). R21 pp. 3-14 (enclosed copy pages numbered 1-12). K. SKLOWER. (1991) "A tree-based routing table for Berkeley Unix." Proceedings of 1991 Winter USENIX Conference. pp. 93-99 (enclosed copy pages numbered 1-4). **R22** V. SRINIVASAN and G. VARGHESE. (1999) "Faster IP lookups using controlled prefix expansion." ACM Transactions on Computer Systems. Vol. 17, issue 1, pp. 1-40 (enclosed copy pages number 1-21). **R23** SURI, S., G. VARGHESE, and P. WARKHEDE (2001) "Multiway range trees: Scalable IP lookup with fast updates." Proceedings of Globecom '01. **R24** WALDVOGEL, MARCEL et al. (1997) "Scalable High Speed IP Routing Lookups." Proceedings of the ACM SIGCOMM '91 Conference on Applications, technologies, architectures, and protocols for computer **R25** communication. pages 25-36 (enclosed copy pages numbered 1-12). **R26**

Examiner	Date	
Signature	Considered	

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance

and not considered. Include copy of this form with next communication to applicant.

Applicant's unique citation designation number (optional).

Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO). to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.